

Post-Combustion NO_x Controls: A Perspective

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SUMMARY

The focus of this presentation is to provide a perspective on current and emerging environmental needs to abate NO_x emissions and the role post-combustion control systems can play in meeting these needs. The applicability, performance and cost effectiveness of NO_x control technologies are reviewed and placed in the context of regulatory drivers. An overview of how these technologies fit in existing and new energy systems is also provided.

What needs and which technologies?

The current and developing environmental requirements for control of NO_x emissions are reviewed for countries throughout the world, with special attention on those countries where NO_x control is of concern. This regulatory review is coupled with an overview of commercial post-combustion control system applications. Because of recently proposed rules related to ozone mitigation, reduction of power plant NO_x emissions to as low as 0.15 lb/million Btu may be required. Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR) NO_x control technologies are prime candidates to meet this goal.

Based on information on recent and planned installations of these post-combustion technologies at U.S. power plants, this presentation examines the following specific applications:

- ✓ Hot-side SCR retrofit
- ✓ SNCR
- ✓ Hybrid systems comprised of SNCR followed by hot-side SCR

Performance and cost estimates for applying these technologies over a spectrum of new and retrofit situations are presented. Design criteria for these applications are discussed, including inlet and outlet NO_x concentrations, ammonia slip, space velocity, and projected catalyst life.

The principal conclusion from this work is that reliable and cost-effective post-combustion NO_x controls are available and will be used extensively to comply with current and developing environmental regulatory requirements.